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REMARKS

Entry of the foregoing and further consideration of the application in light of the remarks that follow is hereby respectfully requested. By this amendment, the specification has been amended to recite that the present application claims priority to U. S. Application No. 09/017,777, filed on February 3, 1998, now U. S. Patent 6,368,496.

The present application claims a method for removing bromine-reactive contaminants from an aromatic hydrocarbon stream which uses an *unbound or self-bound* acid active catalyst composition to remove mono-olefin bromine-reactive contaminants from aromatic hydrocarbon feedstreams of negligible diene level.

Claims 21-40 are presently in the application.

Terminal Disclaimer

Applicants file herewith a new terminal disclaimer respecting U.S. Patent Nos. 6,368,496 and 6,500,996. Applicants note the Examiner's characterization of the earlier-filed "Terminal Disclaimer to Accompany Petition" as improper but submit that characterization is moot inasmuch as no such Terminal Disclaimer was necessary for granting of the Petition to Revive under 37 CFR 1.137(d), i.e., the application was filed after June 8, 1995. See, MPEP 711.03(c)(G).

Obviousness-Type Double Patenting Rejections

Claims 21-40 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,368,496. Although the Examiner acknowledges the conflicting claims are not identical, he urges they are not patentably distinct from each other because each set of claims is drawn to a method for treating a reformat to remove olefin by using the same acidic catalyst. The Examiner notes the present claims do not claim that the crystalline molecular sieve material is bound with alumina but argues the catalyst of the patented

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claims is the same as the claimed catalyst in the present application and thus "would be expected that the present claimed catalyst is bound with a binder matrix comprising alumina.

In the interest of expediting prosecution of this application, applicants have provided herewith a Terminal Disclaimer to overcome this rejection. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 21-40 have also been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,500,996. Although the Examiner acknowledges the conflicting claims are not identical, he contends they are not patentably distinct from each other because each set of claims is drawn to a method for treating a reformat to remove olefin by using the same acidic catalyst. The Examiner notes the present claims do not claim the amount of diene in the hydrotreated reformat but argues the reformat of the patented claims is treated to remove diene as claimed in the present application. Thus the Examiner urges it would be expected that the reformat of the patented claims would have the same amount of diene as claimed in the presently claimed process.

In the interest of expediting prosecution of this application, applicants have provided herewith a Terminal Disclaimer to overcome this rejection. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 USC 103(a)

The Examiner has rejected claims 21-24 under 35 USC 103(a) as being unpatentable over EP 0780458 cited as disclosing a process for reducing olefin content of an aromatics-containing hydrocarbon fraction by contacting the hydrocarbon with acidic active catalyst to result in the substantial alkylation of aromatics with olefins at temperatures of 50°-150°C and a pressure of from 250-450 psig.

In regard to claims 21 and 22, the Examiner acknowledges the EP reference is silent respecting the amount of diene present in the aromatic fraction, but argues "it appears that the aromatic fraction of the EP reference does not contain diene" so it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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have modified the reference process by using an aromatic fraction comprising the claimed amount of diene "because diene is not a critical component in the process" so that one skilled in the art would use any aromatic fraction including the claimed aromatic feedstock.

Regarding claim 23, the Examiner acknowledges the EP reference does not disclose C₇₊ reformat or light reformat in the aromatic hydrocarbon stream but urges the reference discloses any feed containing aromatics and olefins can be used so one skilled in the art would have modified the EP process using an aromatics reformat as a feedstock because it would be expected that a reformat (containing both olefins and aromatics) would be effectively treated in the EP process.

In respect to claim 24 the Examiner acknowledges the EP reference does not specifically disclose that the aromatic fraction comprises toluene and xylene, but nevertheless urges the reference discloses the aromatic fraction comprises C₆ to C₁₂ aromatics so one skilled in the art would find it obvious to modify the process of the EP reference to such an aromatic fraction because it would be expected that C₇ toluene and xylene would be effectively treated.

This rejection is respectfully traversed.

The Examiner's contention that "it appears that the aromatic fraction of the EP reference does not contain diene" is not understood inasmuch as the reference is totally silent with respect to the presence or absence of dienes, much less the specific amounts of dienes set out in the present claims. Moreover, the reference's characterization of the feedstock as "a petroleum fraction containing olefins and aromatics" at page 2, lines 51 to 56 is in no way suggestive to one skilled in the art of a feed containing substantial amounts of diolefin or no substantial amounts of diolefin. The Examiner's contention that "diene is not a critical component in the process" may well be true, but is misleading given that the invention of the present application is based in part on the use of a feed from which diene is *substantially absent*. Given the complete deficiency of the EP reference with respect to the limitations in the present claims respecting diolefin content, it is respectfully urged that one skilled in the art would not be led to the present invention by this reference. Accordingly, withdrawal of this rejection is respectfully requested.

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The Examiner has rejected claims 25-29 and 36-38 under 35 USC 103(a) as being unpatentable over EP780458 in view of U.S. Patent No. 4,954,325 to Rubin et al. (Rubin). The Examiner cites the EP reference as above and further notes that it "does not disclose the catalyst is MCM-22 and its characteristics." The Examiner relies upon Rubin as disclosing that MCM-22 is an effective catalyst for alkylation processes in which aromatics are alkylated with olefins. Rubin is further cited by the Examiner as teaching a binder-free or self-bound molecular sieve.

In respect of claim 29, the Examiner notes the EP reference lacks a teaching of a WHSV of 0.1 to 100 and so relies upon Rubin as disclosing alkylation at a space velocity of 0.1 to 1000 WHSV (sic, column 6, lines 30 to 65 appears to teach only an overall WHSV of 2 to 2000). The Examiner argues it would be obvious to modify the EP reference's process to utilize the claimed WHSV given Rubin's teachings of certain space velocities being effective in alkylation processes.

This rejection is respectfully traversed.

Notwithstanding the reliance on Rubin, the combination of references fails to disclose or suggest the use of a feed which has a negligible diene level as required by the present claims. Rubin, like the EP reference, is silent respecting the presence or absence of dienes. The only mention in Rubin specific to the extent of unsaturation of the olefins employed appears at column 6, line 51 which refers to propylene, a mono-olefins. Given this difference between the references and the present claims, it is respectfully submitted that the combined references neither disclose nor suggest to one skilled in the art the present invention's treatment of feeds having negligible diene levels with the acid active catalyst composition required by the present claims. In view of this, withdrawal of this rejection is respectfully requested.

The Examiner has rejected claims 30-34, 39 and 40 under 35 USC 103(a) as being unpatentable over the EP reference, further in view of U.S. Patent No. 5,417,844 to Boitiaux et al. (Boitiaux). The Examiner cites the EP reference "as applied to claim 27 above" which is not understood inasmuch as claim 27 is not specifically discussed in relation to the EP reference. Accordingly, it is assumed here the Examiner likely meant

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"claim 21" from which claims 30-34 depend. The Examiner acknowledges that the EP reference does not disclose a pre-treating step and so relies upon Boitiaux as disclosing a process for removing dienes from a hydrocarbon feed comprising olefins and aromatics by using a catalyst comprising nickel and alumina at temperatures between 50° and 180°C, pressures of 435 to 725 psig. The Examiner concludes it would have been obvious to one skilled in the art at the time the invention was made to have modified the EP reference by using the Boitiaux feed and passing it into the treating step "because the EP feed is similar to the Boitiaux feed in terms of olefins and aromatics." The Examiner further notes that Boitiaux does not specifically disclose pre-treating at a space velocity of 0.1 to 100 WHSV, (sic, of the claims in this rejection only claims 35, 39 and 40 appear to contain space velocity limitations, i.e. 0.1 to 10 WHSV). However, the Examiner notes that Boitiaux discloses hydrocarbon flow rate of 200 and 800 cm³/h (sic, cm³/h) and "[i]t is estimated that the space velocity of the Boitiaux process would be within the claimed WHSV."

This rejection is respectfully traversed.

Boitiaux relates to selectively hydrogenating diolefins in liquid hydrocarbon fraction containing diolefins mixed with olefinic compounds and aromatic compounds using a nickel catalyst treated with organic sulphur agent. Although Boitiaux discloses hydrocarbon flow rates of 200 and 800 cm³/h, their conversion to space velocity values within the claimed range of 0.1 to 10 WHSV is not explained by the Examiner. Indeed, the Examples of Boitiaux give the amount of catalyst in terms of volume rather than weight which would make it difficult for one skilled in the art to determine weight hourly space velocity from the Examples. More generally, applicants observe that Boitiaux in no way discloses or even suggests using the feeds treated to remove diolefins for the purposes of the present invention, namely for subsequent treatment to remove mono-olefins from an aromatic-containing feedstream.

Moreover, the Examiner has relied on a combination of references in rejecting claim 30-34, 39 and 40 for obviousness. Where a combination invention can only be arrived at by combining various components described in separate prior art references, there must be some reason for the combination: a teaching, a motivation, an incentive, or

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a suggestion. In *re Laskowski*, 10 USPQ2d 1397, 1398-1399 (Fed. Cir. 1989). No such reason exists here. Each of the various references cited fails to disclose particular limitations of the claimed invention. There is no disclosure or even suggestion in the prior art to select Boitiaux's diolefin-free stream as a feed to the EP reference's process of alkylating aromatics.

The Patent and Trademark Office's obviousness position is an exercise in hindsight, which is an impermissible basis for the rejection. In *In re Fine*, 5 USPQ2d 1596 (CAFC January 1988) the court reversed the Examiner's rejection for obviousness on prior art and stated at 1599:

Instead, the Examiner relies on hindsight in reaching his obviousness determination. But this court has said, "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *W.L. Gore*, 721 F.2d at 1553, 220 USPQ at 312-13. It is essential that "the decision maker forget what he or she has been taught at trial [in applicant's specification] about the claimed invention and cast the mind back to the time the invention was made...to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." *Id.* One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

In the present rejections, the Examiner ignores the full teaching of the references and only picks and chooses the necessary parts from the rejection to piecemeal reconstruct the claimed invention based on appellants' disclosure. This is contrary to the law of obviousness. In view of this, withdrawal of this rejection is respectfully requested.

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CONCLUSION

Applicants respectfully submit that the present claims describe a new, useful and unobvious method for decreasing bromine-reactive contaminants in aromatic streams with an unbound or self-bound acid active catalyst. Accordingly, it is respectfully requested that the Examiner allow the presently amended claims.

Respectfully submitted,

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